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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ELMORE, STEPHEN C

ART UNIT PAPER NUMBER

2186

DATE MAILED: 06/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/704,176

Applicant(s)

GAITHER ET AL.

Examiner

Stephen Elmore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6,11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,11 and 12 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. This Office action is in response to the amendment filed April 23, 2003, paper number 7, in which claims 3 and 7-10 were canceled, and claims 11 and 12 were amended.
2. Claims 1, 2, 4-6, 11 and 12 remain for examination.

Drawings

3. The objections to Figs 3A, 3B, 4A and 4B are *withdrawn*, however, the objections to the drawings under 37 CFR 1.83(a) are *maintained* for the following reasons.

The drawings must show every feature of the invention specified in the claims. Therefore, the following features identified in the first Office action must be shown or the feature(s) canceled from the claim(s).

- a. claim 1, "a list containing..." and "a list not containing..." and "address reference(s)";
 - b. claim 2, "tag";
- and, the following new features, not previously identified but also discovered to be absent from the drawings, must be shown,

- c. claim 1, "an indicator of which cache owns each line";
- d. claim 11, "(the step of) removing an address reference to a line, from the list, when the line has remained in the list for longer than a specified time";
- e. claim 12, "(the step of) removing an address reference to a line, from the list, even when the list is not full, to help prevent the list from filling";

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f. claims 11 and 12, "(the step of) updating the list only when ownership of a line changes".

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 11 and 12 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of maintaining cache coherency in a computer system, for the scope of:

- i. an invention where the method includes updating the list (of address references) for all the lines that are owned for the condition where the ownership of a line changes, but the method also includes updating the list, i.e., when a line is removed, whenever that line has remained in the list for longer than a specified time, and further, also includes updating the list, i.e., when a line is removed, even when the list is not full, to help prevent the list from filling,

does not reasonably provide enablement for the scope of:

- ii. updating the list only when (emphasis added) ownership of a line changes.

The teachings of the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with these claims because, the scope of meaning that is given to the

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language "updating the list" includes the meaning of the activity "removing an address reference to a line" (as per claims 11 and 12) since the removing activity logically and necessarily updates the list by changing the list's contents, therefore, as discussed above, the scope of enablement as disclosed in the specification and claims is not commensurate with the scope of enablement as stated in claims 11 and 12 because updating the list does not only occur when ownership of a line changes.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al., US Patent 5,655,103.

Cheng teaches the claimed computer system (claim 1) as a symmetrical multiprocessing system, comprising:

a. a plurality of memory caches is taught, see Fig. 1, elements 101-103, and col. 2, lines 13-15;

b. a list containing an address reference for every line in the plurality of memory caches for which a corresponding line in memory may not be identical, is taught, see Fig. 1, element 109, as system directory, and col. 2, lines 18-21 and 27-31; and an indicator of which cache owns each line is also taught, see col. 2, lines 27-31;

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c. and. the feature, the list not containing address references for lines that are shared or uncached, is taught since the list does not contain address references for lines that are uncached;

d. and the list not containing data corresponding to the address references, is also taught since the list only contains the address references and certain indicator bits shown in Fig. 3, element 109;

e. as to claim 2, wherein the address reference is a tag, this is taught to the extent it is claimed since the address references shown in element 109 are functionally equivalent to a tag because, a "tag" is an address reference minus any status bits, and no status bits are present in the address reference portion shown in element 109;

f. as to claim 5, wherein the list is a single list shared by all the devices, this is taught since the element 109 is a single system directory (list) that is shared;

g. and as to claim 6, wherein every device that can request a copy of memory data maintains a local copy of the list, this limitation is taught by the reference since according to col. 2, lines 18-21, "the memory controller controls access to system memory" which makes the memory controller the only device that can directly request a copy of memory data, that is, the other devices in the system can only request data generically, their request is not specific to system memory, therefore, they do not request access to memory data, and so, because only the memory controller implements the system directory, and it is a local copy of the list for the memory controller, these limitations are met to the extent they are claimed, because only the memory controller can request a copy of memory data in the system of the reference.

Response to Arguments

9. In response to applicant's remarks pertaining to the objections to the drawings,

Applicant argues that features, that the examiner identified in the first Office action as not illustrated in the drawings, are truly shown in the drawings because they are contained in the depicted GOTL, however, this argument is not persuasive because although the specification says these features are included the GOTL element, nevertheless, these features are not actually shown in the drawings since only the GOTL is shown and any feature it is said to contain are not, in fact, shown.

Allowable Subject Matter

10. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Elmore whose telephone number is (703) 308-6256. The examiner can normally be reached on Mon-Fri from 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (703) 305-3821. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular

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communications, (703) 746-7240 for Non-Official/Draft communications, and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



Stephen Elmore
Patent Examiner
Art Unit 2186
June 19, 2003